



(12) **EUROPEAN PATENT APPLICATION**

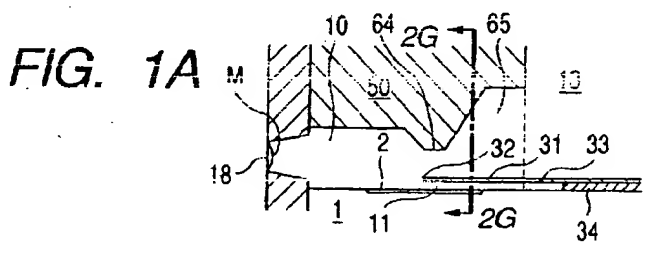
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<p>(84) Designated Contracting States: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE Designated Extension States: AL LT LV MK RO SI</p> <p>(30) Priority: 21.08.1998 JP 23611798 21.08.1998 JP 23612098 21.08.1998 JP 23612298 21.08.1998 JP 23612398 21.08.1998 JP 23612498 21.08.1998 JP 23612598 21.08.1998 JP 23612698</p> <p>(71) Applicant: CANON KABUSHIKI KAISHA Tokyo (JP)</p>	<p>(72) Inventors: • Shimazu, Satoshi Ohta-ku, Tokyo (JP) • Sugama, Sadayuki Ohta-ku, Tokyo (JP) • Ishinaga, Hiroyuki Ohta-ku, Tokyo (JP) • Taneya, Yoichi Ohta-ku, Tokyo (JP) • Sugiyama, Hiroyuki Ohta-ku, Tokyo (JP)</p> <p>(74) Representative: Beresford, Keith Denis Lewis et al BERESFORD & Co. High Holborn 2-5 Warwick Court London WC1R 5DJ (GB)</p>
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(54) **Liquid discharge head, liquid discharge method and liquid discharge apparatus**

(57) A liquid discharge head comprises heating members for generating thermal energy to create bubbles in liquid, discharge ports forming the portions to discharge the liquid, liquid flow paths communicated with the discharge ports, at the same time, having bubble generation areas for enabling liquid to create bubbles, movable members arranged in the bubble generation areas to be displaced along with the development of the bubbles, and regulating members to regulate the displacement of each of the movable members within a desired range, and with energy at the time of bubble creation, the liquid being discharged from the discharge

ports. For this liquid discharge head, each of the liquid flow paths holds bubbles at the time of bubbling, at the same time, being provided with gaps arranged on the sides of the movable member to allow the liquid on the upstream thereof to flow into the bubble generation area at the time of bubble disappearing. With the structure thus arranged, the meniscus is drawn into the liquid flow path quickly immediately after the bubble disappearing of bubble begins, and then, with a strong force of the meniscus, the trailing portion of the liquid column connected with the discharged droplet is cut off outside the discharge port, hence making the number of satellites smaller for the enhancement of the quality of prints.



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FIG. 1B

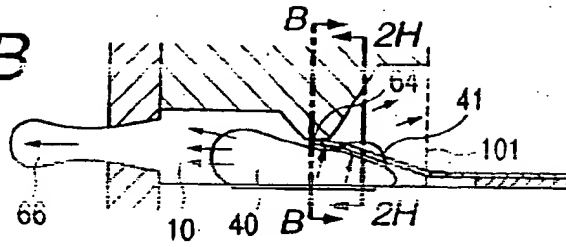


FIG. 1C

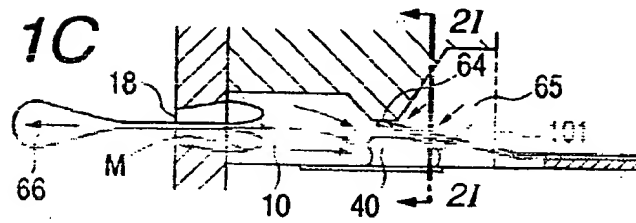


FIG. 1D

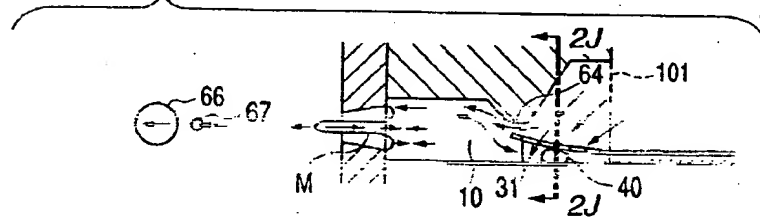


FIG. 1E

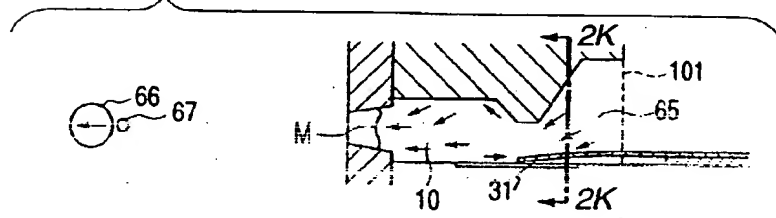
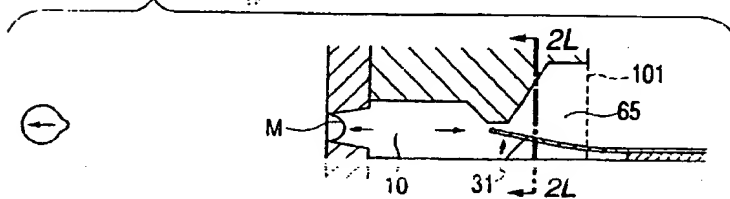


FIG. 1F





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A	* page 11, line 1 - page 12, line 10 * * figures 10-12 * ---	1,11,59, 66	
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A	* column 20, line 31 - column 21, line 52 * * column 22, line 45 - column 23, line 20 * * figures 8,10 * ---	1,11,59, 66	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 6 July 2000	Examiner Didenot, B
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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